

The Emergence of Norms in Competitive Decision-Making Groups

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This paper examines the development of norms in newly formed groups. The behavior of 19 decision-making groups provided the basis for a model of norm development, in which uncertainty over appropriate behavior leads members to use their past experiences in similar social settings as scripts for choosing behaviors in the current situation. Depending on the similarity of the members' scripts, a common basis for action is either taken for granted or negotiated within the group. As the members interact they either tacitly revise their beliefs about appropriate action, implicitly agreeing with the direction being taken by the group, or overtly attempt to pull the group toward their own interpretation through challenges to the implied norm. Data from the decision-making groups is used to illustrate the model, and implications for related research domains are discussed.*

Social norms are among the least visible and most powerful forms of social control over human action. Sherif (1936: 3) defined social norms as "customs, traditions, standards, rules, values, fashions, and all other criteria of conduct which are standardized as a consequence of the contact of individuals." Norms can be considered "standards against which the person can evaluate the appropriateness of behavior, . . . providing order and meaning to what otherwise might be seen as an ambiguous, uncertain, or perhaps threatening situation" (Raven and Rubin, 1976: 314). We view norms as regular behavior patterns that are relatively stable within a particular group. Other conceptualizations (e.g., McGrath, 1984) treat norms as expectations about what "ought to" happen. Because most groups include active and inactive people, those who observe action but do not become actively involved hold expectations about what "ought to" happen. Active group members, on the other hand, establish and legitimize certain behaviors that may eventually become behavioral norms. They have expectations about what ought to happen *and* actively implement their expectations through their own actions. For our purposes, we focus more on observable behaviors than on the less identifiable expectations often considered norms.

Several conceptualizations of the patterns of group interaction include the development of norms as one of four distinct stages. Tuckman (1965), for instance, reviewed the development of interaction in a variety of group studies, many of them unfortunately done with therapy and T-groups. He posited four typical stages of group development: forming, storming, norming, and performing. Hare (1976) and McGrath (1984) proposed similar stages, McGrath's being (1) generating plans, ideas, and discussing values and goals; (2) choosing alternatives and forming a policy and value consensus (which may involve some conflict, thus matching Tuckman's storming stage); (3) resolving the conflict, developing norms, and allocating resources and roles; and (4) performing and becoming cohesive. Our conceptualization focuses on the emergence of norms but identifies two distinct group processes that may generate them. Like the authors of earlier studies, we agree that "It is only in imagination that we can talk about a human group apart from norms" (Davis, 1950); unlike these authors, we try to avoid compressing the patterns of any group into a single developmental sequence (cf., Stock and Thelen, 1958).

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Feldman (1984) recently presented an alternative, task-oriented conceptualization identifying four purposes for norms (survival, efficiency, ease of interaction, and group expression) as well as several ways that norms can form (by fiat, because of a critical event, due to primacy, or due to group members' similar past experiences). Unfortunately, as almost all of the treatments of norms and group development point out, there has been little systematic work on how norms actually form.

What may be the best research on norm formation, then, is very dated. Sherif (1936) used the autokinetic phenomenon, the illusion of motion that results when a small, stationary light is observed in a completely darkened room, to examine the characteristics of norms in a setting that freed subjects from the influence of previously established norms. The result of Sherif's experiments were dramatic: when an individual was repeatedly exposed to the autokinetic illusion alone, the variation in his or her estimates quickly converged upon a relatively tight range, indicating that a unique individual response pattern had been established. When these individuals were later exposed to the light in groups of two or three and were asked to verbally state how far they saw the light move, the diverse individual response patterns converged toward a common assessment of the light's movement. When group sessions preceded the individual ones, convergence upon a single estimate was much more rapid and long-lasting, remaining throughout subsequent individual sessions. (In one replication [Rohrer et al., 1954] individual judgments continued to conform to the group's standard a full year later.) Sherif believed that these results demonstrated the basic psychological process involved in the establishment of social norms: our experience is organized around or modified by collectively produced frames of reference.

Although Sherif's (1936) work generated a great deal of research, very little of it explored the general conditions surrounding the development of a norm. Instead, researchers tested various conditions present in Sherif's experiments. Alexander, Zucker, and Brody (1970) showed that subjects' expectations of orderliness and stability in laboratory settings were critical: when told that the light was actually stationary but might appear to move erratically, subjects did not converge toward an individual or group estimate. Participants still perceived the presence of movement; they were now released from the pressure to converge. Mausner (1954) used lines of varying lengths (Asch, 1951) to demonstrate the role of uncertainty: when paired with a subject whose estimates were substantially different than their own, subjects who were told that their judgments were almost always (82 percent) correct maintained estimates that were consistent with their earlier individual judgments. Subjects who were told that their judgments were almost always incorrect, on the other hand, converged toward their partner's estimates.

Other research on conformity (Asch, 1951; Tuddenham, 1959), deviance (Schachter, 1951), and related topics all focused on the presence or effects of norms. Almost no studies, though, have investigated the process of norm emergence.

Following suggestions by Nemeth (1974), our research focuses on the interaction among group members as the key to

understanding how norms form. The ideas presented in this paper arose as we observed the outcomes of an experiment on group decision making and coalition formation. Our observations of the groups indicated that the unique character of each of the groups seemed to overwhelm our other manipulations: groups responded not to the structure of the situation but to their own precedents, set early in their initial interactions. In a previous study (Murnighan and Szwajkowski, 1979), where group members were separated by opaque partitions, the structure of the coalition situation significantly affected payoff allocations; in the current study the group's previous face-to-face interactions became the primary determinant of the outcomes we observed. Thus, our focus expanded to investigate the process of norm development as well as the outcomes of coalition formation.

Our thinking has led to a series of propositions about the development and crystallization of group norms. We have also analyzed some of the data from the experiment to substantiate our initial impressions and our theoretical logic. Not all of our propositions can be rigorously tested by this data set: the study was not designed for this purpose. Indeed, because our observations of these groups stimulated our conceptual framework, the propositions and data represent a commingling process: the statistics do not test the model but substantiate our early impressions. Nevertheless, the data provide an excellent sample of newly formed groups whose behaviors are most strongly determined by the norms that developed when they *least* knew what they should be doing.

THE STUDY

Handel (1979) emphasized that norms are specific to the situation and the people who interact within it. The situation sets the stage and contributes considerable meaning to the interactions that ensue. Our research focused on a particular laboratory context: a competitive decision task for five people who met for four sessions, each lasting approximately one hour. Each group formed a series of coalitions to reach twelve decisions in each session. Over four sessions, then, each group coalesced and decided 48 times.

The group members role-played representatives of one of five different engineering departments that were competing for a series of federally funded research projects. The groups bargained to determine which of the departments would be involved in each project and what portion of the research funds each would receive. One group member was given the single "strong" position in each session: his or her agreement was required for every decision in that session. The member holding the strong position varied in each session and, to vary the structure of the task, the combinations of departments that the funding agency was willing to support also varied. Essentially, the scenarios were very simple: group members soon realized that their only task was to decide who would divide the \$100,000 for each of the 12 projects and how much they would receive when it was divided.

The situation contains elements of cooperation and competition: group members competed for inclusion in the projects but had to cooperate with other group members to reach an

agreement. Competition dominated: group members were encouraged to maximize their department's funds and formulate individually effective strategies. In addition, the participants were MBA students whose course grade depended (in part) on their performance. The presence of one group member whose agreement was necessary for every decision further heightened the potential conflict within the group.

Although almost all social and organizational interactions involve mixed motives (i.e., both cooperation and competition), our experimental context probably generated more competition than would typical group interactions. We have implicitly assumed that this is an advantage for our study: the dynamics that might slowly develop in less competitive contexts should have arisen more quickly here. Indeed, the need to deal with the competition and conflict inherent in the situation may have induced these groups to form norms to coordinate their activities much more quickly than would other, less competitive groups.

INDIVIDUAL RESPONSES TO THE FIRST SESSION

Five people met at a prearranged time for their first session. The experimenter played the role of the funding agency's representative and answered all except strategic questions. For most people, the task was novel: after an introduction to the task, most participants were very uncertain and very uncomfortable about what they should do. Festinger (1954) suggested that in such ambiguous situations, people turn to each other for clues as to what is appropriate behavior: they use social comparison processes to relieve the discomfort of not knowing what behaviors are appropriate. As they observe each other, the members of these groups become actors for each other: as one person tries unobtrusively to observe the others, they observe him or her with similarly manufactured detachment. Observing actions begins to establish a role or basis for each actor-observer's future actions.

Uncertainty about appropriate behavior may also generate individual introspection. The concepts of schemas (Bartlett, 1932; Taylor and Crocker, 1981) and scripts (Abelson, 1976), cognitive representations of objects, persons, events, roles, and their interrelationships that provide a frame (Minsky, 1975) for interpreting newly experienced stimuli, may apply here. When new information is presented, people search through their memory to find similar situations to help them organize and make sense of the new stimuli. In our study, people may have used the introductory material about the task to identify a script that would help them make sense of this upcoming experience. Although scripts are often chosen even when their elements do not match the elements of the new situation well, the dismay communicated by many group members prior to their first interaction suggests that, for many, no script was readily available. Instead, group members went to their first session wondering what it would be like and hoping to be able to respond spontaneously and appropriately. Even if someone is equipped with a cognitive script, they still may not know how to behave (Abelson, 1976). Behavior can also depend on the confidence a person has in his or her script, but the unique nature of the task in this study left little room for confident behavioral translations of abstract scripts.

Arriving at the first session and observing the behaviors of the other group members provides any single group member with considerable information. The situation is now concrete rather than abstract, and the selection of an appropriate schema or script can now be based on a stronger foundation of information. Data in this first session was quickly assimilated: although the group members typically were unacquainted, first impressions were quickly and easily made (Schneider, Hastorf, and Ellsworth, 1979). Actions and observations structure the situation for all the group members.

Silence is socially uncomfortable: if the group does not begin on their task immediately, someone is bound to say something to fill the quiet. If any group member has chosen a script and his or her role as an actor within it, that person may act in accord with the script selected. Even if the situation does not conform to all the facets of the script, scripts tend not only to organize but to subsume the new situation, determining its meaning (Taylor and Crocker, 1981). The first actor may begin on this basis.

The fact that people have had many different experiences allows them to observe and accept a wide range of behaviors by other group members. In a new situation the behaviors of a first-acting group member can often be assimilated fairly easily, especially by people who have not become firmly committed to a particular script. The actions they observe contribute to their ability to choose an appropriate script; thus, those actions not only confirm the script chosen by the actor but are influential in the script choices of the other group members.

A PRELIMINARY THEORY OF NORM DEVELOPMENT

A critical element in norm development is the emergence of a generally held, group-based understanding of expected and accepted behavior. Group members validate and adjust, often implicitly, the subjective meanings they initially attach to the social actions occurring within the group.

In new groups the meanings attached to action are necessarily based on the members' prior experiences in what they believe are similar situations (Feldman, 1984). Figure 1 illustrates four possible ways members can interpret the situation in a new group. Our conceptualization distinguishes between an individual's initial definition of the new situation and the script they use as a basis for that understanding. While group members may perceive the task and the initial behavior of other group members in similar ways, they may base their definition of the situation on different experiences. In other words, they may anchor their interpretations to different social contexts. Alternatively, they may have experienced similar situations before but may "see" the current situation in different ways. Although we have dichotomized these two causes for behavior, various degrees of similarity and difference are possible.

The simplest case (Cell I) is the similar definition, similar script: if uncertainty about appropriate behavior exists, it quickly evaporates. However, even if people's experiences (or their interpretations of them) are relatively similar, they may still perceive the new situation in different ways (Cell II). Initial actions will either redefine the situation for observers or will

Figure 1. Ways in which group members can interpret a new situation.

		Group Members' Scripts	
		Similar to each other's	Different from each other's
Member's definition of the new situation	Similar to each other's	<p>I</p> <p>Interactions confirm each member's interpretation and are not problematic</p>	<p>III</p> <p>Initial interactions proceed smoothly but latent disagreement may require subsequent development of a group-based understanding</p>
	Different from each other's	<p>II</p> <p>Initial interactions trigger the development of a group-based understanding of the situation; members must work toward a common definition of the current situation</p>	<p>IV</p> <p>Initial interactions either frustrate the group or trigger the development of a group-based understanding of the situation; elaborate discussions are necessary</p>

lead to conflicting actions that require resolution. If members have similar scripts, the conflict resolution process should be relatively straightforward. Individuals may, for instance, use similar language to move to a mutually acceptable definition of the new situation.

An entirely different dynamic may arise when the group members base their actions on different scripts that nevertheless prescribe similar behavior in the new situation (Cell III). Early interactions can proceed rapidly because everyone perceives the current situation similarly. But when disagreement surfaces, resolving differences based on different scripts, which are more deeply rooted than definitions of a novel situation (Taylor and Crocker, 1981), may be particularly problematic.

The most difficult situation, of course, occurs when group members have different scripts and define the situation differently (Cell IV). At the extreme, they have difficulty identifying a basis for discussion. An example might be people from different cultures, speaking different languages, who see the new situation from completely different perspectives.

Our first propositions use this scheme of interpretative possibilities and indicate the directions different groups might pursue.

Proposition 1. In new groups, uncertainty over appropriate behavior leads group members to anchor the current situation to what they perceive are similar, previously experienced situations.

Proposition 1a. If all members use similar scripts and define the situation in the same way, interaction is easy (Cell I).

Proposition 1b. If group members use different scripts but respond in similar ways, initial interaction may not be problematic but latent discord may eventually lead to conflict that is then difficult to resolve (Cell III).

Proposition 1c. If group members do not adopt common interpretations of the novel situation, they must develop a group-based understanding of the situation (Cells II and IV). If they have different scripts, they must build understanding without the aid of past references.

Research evidence (Mausner, 1954; Alexander, Zucker, and Brody, 1970) is consistent with proposition 1: when people in the darkened room assumed that the light movements were real and measurable, they used their fellow group members' estimates as cues to appropriate behavior. When they were more certain about their own perceptions or about the illusion of movement, the cues provided by others' estimates were not used.

The second major phase of norm development occurs as soon as the group begins interacting: a series of common experiences propels the group toward the development of a common definition of appropriate group behavior. Members integrate each succeeding event with the interpretation they have developed from previous experience. This process occurs concurrently for all group members; the subjective meanings that members place on actions within the group become more compatible, even if they are not identical (e.g., P. White, 1974).

Initially, one member's actions may not be compatible with another member's interpretation of the situation. When this occurs, the group must negotiate (sometimes tacitly) to determine which interpretation is appropriate.

Proposition 2. As group members interact, their shared experiences form the basis for expectations about future interactions.

Proposition 2a. When other members' actions are compatible with the meaning a member has attached to the task, the interpretation is legitimized and confidence in applying the interpretation increases.

Proposition 2b. When some members' actions are not compatible with other members' conceptualizations of the task, the non-acting members may revise their original interpretations, or

Proposition 2c. They may attempt to persuade the group to accept their conceptualization, defining the observed actions as inappropriate.

In trying to persuade the group to accept a point of view, a group member challenges the prevailing interpretation of the situation and what constitutes appropriate action within it. Almost every group in this study encountered and resolved challenges to the group's evolving pattern of outcomes. A threat or challenge arises when the group's recent agreement or current proposals fall outside what at least one member considers to be appropriate and that person is sufficiently motivated to act. (In Abelson's, 1976, terms, the behavioral aspect of a cognitive script is activated.) A challenger calls the established precedent into question and provides an opportunity for group members to evaluate the appropriateness of

their prior actions. The threat can serve as a catalyst for altering the force of prior precedents or, if it is dismissed, confirm the group's prior actions. If the threat is not dismissed, subsequent behavior will follow either (1) the rationale presented in the threat or (2) the consensus that emerged as the threat was resolved.

Although norms can develop without threats — each successive agreement contributes to the members' shared understanding of appropriate behavior — threats are crucial to understanding the formation of a norm, because they allow the evolving, taken-for-granted activity of the group interaction to be publicly and self-consciously considered. Threats are an integral part of theories of bargaining in economics (e.g., Ellsberg, 1959), game theory (e.g., Aumann and Maschler, 1964), and social psychology (e.g., Komorita and Chertkoff, 1974). Because the dynamics of bargaining occur in most if not all groups and were the basis for group activity in this study, threats are particularly important. The threat activates what otherwise occurs subtly: it brings to the surface the differences in the subjective meanings that each member had attached to the group's activity. Without a threat, group members may not even consider the possibility of alternative actions. Thus, we would expect groups who have dismissed a threat to be more immune to subsequent threats; groups who have experienced no threats may be particularly vulnerable when one surfaces (cf., McGuire and Papageorgis, 1961). In resolving the threat, a group builds a consensus of subjective meanings that more effectively directs the group's behavior.

Threats can be resolved with relative ease or extreme difficulty. When a single, unsupported group member presents a threat, it is often quickly resolved. Just as the conformity pressures of a group break down when nonconformists are supported by other group members (Asch, 1951), so, too, we expect *supported* threats to provoke discussion and require resolution. Successful threats demonstrate that the group's previous behavior may have been due to pluralistic ignorance (Krech and Crutchfield, 1948) rather than an accurate understanding of appropriate behavior. This leads to the following propositions:

Proposition 3. Challenges to the group's evolving pattern of behavior can reveal the subjective meanings the members attached to the group's interaction.

Proposition 3a. Quickly accepted threats indicate general approval of the action expressed in the threat.

Proposition 3b. Quickly dismissed threats indicate general agreement that was expressed only implicitly in the group's actions.

Proposition 3c. Threats not quickly resolved (major threats) indicate that members attached incongruent meanings to the group's actions.

Proposition 3c₁. Groups that resolve major threats become more immune to subsequent threats.

Proposition 3c₂. Groups that have not experienced major threats may be particularly vulnerable when one surfaces.

At some point, the group begins to act using the meanings that have developed within the group rather than the meanings the individuals used initially to anchor and understand the task. Thus we would say that a norm unique to that ensemble of interacting members exists. Opp (1982) and others propose

that norms are gradual and evolutionary; while they certainly *can change over time*, our observations suggest that norm formation is subtle but swift.

The test of any norm is its ability to control behavior. When group members impose sanctions on behavior that violates its precedents, a norm can be considered fully operative.

Proposition 4. *Once a norm has formed, any further attempts to alter the behavior it controls will be met with sanctions.*

These propositions were generated by the observations we made in the current study and by observations of group interactions in general. The data are analyzed to support our initial impressions and to clarify the workings of the propositions in this context. Quantitative analyses were used to substantiate our impressions and to test whether the propositions had any validity, even if it is only within this setting.

METHOD

Participants. The participants were 95 students assigned to 19 five-person groups. All were enrolled in a behavioral science course at the University of Illinois at Urbana-Champaign. They had little or no background in behavioral science and none in coalition research before the study. During the course of the study, four individuals dropped out and were replaced.

Procedure. General instructions were given before the first session. Each person was to represent a different department seeking funds from an agency that required interdisciplinary research. During each of four sessions, "the agency" (the experimenter) identified a different set of "acceptable" interdisciplinary combinations. While only acceptable combinations were allowed to form, the agency was not concerned with how each grant of \$100,000 was allocated, only that all agreeing members concurred. Reaching agreements to divide each \$100,000 grant was the basis of the bargaining task. Twelve agreements were included in each session, with no time limits. Representatives attempted to obtain as much *funding for their department* as possible; their performance determined a part of their course grade.¹

Students were randomly assigned to groups, with the constraint that members be unacquainted. Most groups met for their sessions at the same hour each week for four weeks; on rare occasions some groups played two games on the same day. Each of the four bargaining sessions (see Table 1) included a different group member as the strong player whose *agreement with each decision was required*. The combination of group members who could reach a decision changed from one session to another (orderings were chosen from a Latin-square design). Subjects knew the game structure ahead of time, but not which power position they would hold for any of the games. They were encouraged to formulate strategies for the five power positions prior to each game and were allowed to discuss the games with classmates who were not members of their own group.

The seating pattern for the different power positions in any game was fixed: thus, position at the table did not vary between groups, only between game structures. The "funding agent" (experimenter) sat at one end with a tape recorder and

1

The use of an instructor's students in his or her own research raises questions concerning the possibility of unethical coercion. The safeguards taken by the authors to preserve the free choice of the participants are available from the second author upon request.

Table 1

The Bargaining Games, Their Structures, and the Minimum Winning Coalitions

Game	Structure	Minimum winning coalitions*
#1	$A > (B = C = D = E)$	AXX†
#2	$A > B > (C = D = E)$	AB, ACD, ACE, ADE
#3	$A > (B = C) > (D = E)$	AB, AC, ADE
#4	$A > (B = C = D = E)$	AX†

*Minimum winning coalitions are those that would no longer be winning if any member left the coalition.

†X refers to B, C, D, or E.

paper to record each agreement. Group members were given a list of all the acceptable agreements and were assigned to power positions at the beginning of each session. They could invent any arguments or make any offers they wished, with the exception that references to future agreements were not allowed, since groups making one "super-agreement" would not be comparable to groups making 12 separate agreements. When the members of an acceptable coalition agreed on a distribution of the \$100,000, the experimenter announced that an agreement had been reached, recorded the outcome, and opened the floor for discussion of the next agreement.

Lengthy discussions of the sessions were conducted after the data were collected as a part of the class's more general coverage of game theory and bargaining.

Observations of Group Patterns

Our observations of the groups led us to assume that unique norms formed in each of the groups, typically during their very first agreements. Our first task was to demonstrate the validity of this assumption. The examination of norm development, then, will be organized around three questions: (1) Did a unique norm exist in each experimental group? (2) Did this norm affect the behavior of group members? and (3) What were the conditions surrounding the formation of the norm and what impact did those conditions have on subsequent behavior? This last question addresses our propositions.

Two types of behavioral sequences emerged — one associated with the pattern of strong members' payoffs and the process that contributed to it and another relating to the time group members spent discussing potential agreements and the reasons for them. The outcome and time sequences that emerged during the first bargaining session were used to classify the groups.

We classified groups by the pattern of their outcomes (payoff rates) into "increasing" and "decreasing" groups. In increasing groups, strong members received payoffs that increased from one agreement to the next, with increasingly competitive offers to the strong member by the weak group members. In decreasing groups, the strong member's payoffs generally decreased with each successive agreement; weak members' offers started lower and finished lower than the strong member's previous payoffs. Examples of increasing and decreasing patterns are shown in Figure 2, below.

Simple regressions were run on all 19 groups to classify them as either increasing or decreasing, with the strong member's payoff as the criterion variable and the 12 agreements in the group's first session as the predictors. The resulting beta is the slope of the line that best fits the pattern of strong-member payoffs. Positive (12 groups) and negative slopes (7 groups) distinguished between increasing and decreasing groups for all but one case, in which the group's negative slope resulted from a single low payoff late in the first session and subsequently lower, though increasing payoffs.

The groups also developed two "time" patterns. Groups were labelled "impetuous" if a majority of their first session agreements took less than one minute; if a majority exceeded one minute, they were labelled "deliberate."² Deliberate groups proceeded calmly: everyone had the opportunity to be involved in each agreement and could present their rationale for suggesting a particular payoff distribution. Group members often tried to "figure out" the best way to deal with the situation. Impetuous groups were characterized by their frenzied pace: their proposals consisted of numerical offers with few verbal arguments. Bidding was quick and competitive, and members who hesitated were left out of the agreements.

To investigate whether a unique norm existed in each group, results from this study were compared with those from a previous study (Murnighan and Szwajkowski, 1979), which had a conceptually equivalent data set. The two studies investigated the same bargaining games: their structures and sets of minimum winning coalitions were identical; group members were drawn from the same population; they were all told to try to maximize their own payoffs; and their outcomes were compared to the outcomes of the members of other groups who held their same strategic position in each session. Game theoretic predictions for the two sets of games would be identical. The major difference between the two studies was the negotiation and decision-making process: in the prior study, group members were unable to see each other or communicate verbally; their negotiations depended strictly on written proposals.³ In the current study, group members met face-to-face in each of their sessions. This difference appears to have been particularly important for the emergence of norms in this study. Data from Murnighan and Szwajkowski (1979) will be presented to suggest that, in the current study, membership within an identifiable group and experiencing the task with those particular group members are more important determinants of the outcomes than the different coalition structures.

2

Group 15, classified as deliberate, spent 8½ minutes per agreement on its first four agreements but then moved through its next agreements quickly. Because of the time members took early in their first session, the group fit the definition of a deliberate group.

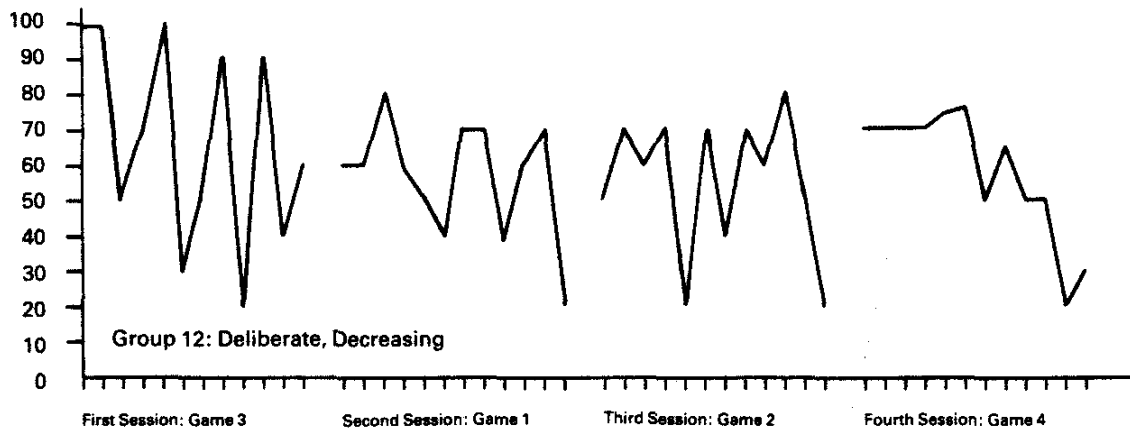
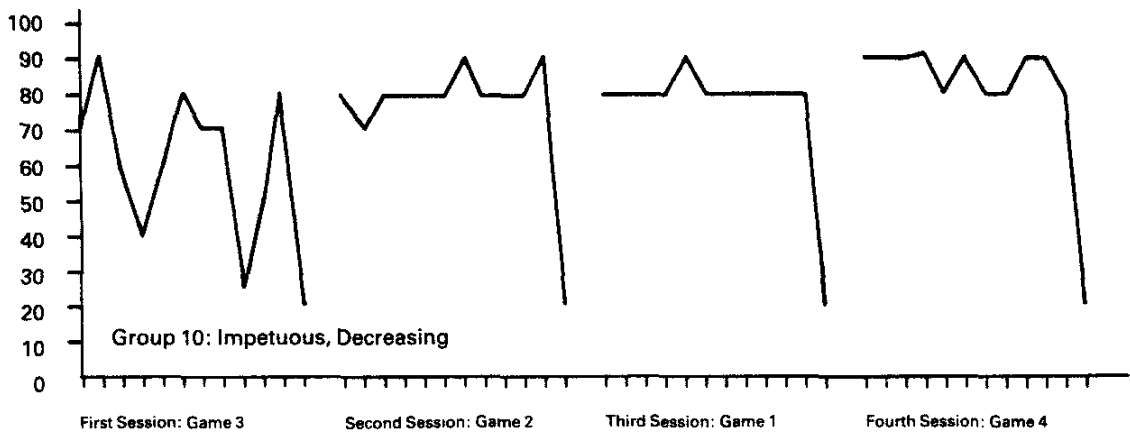
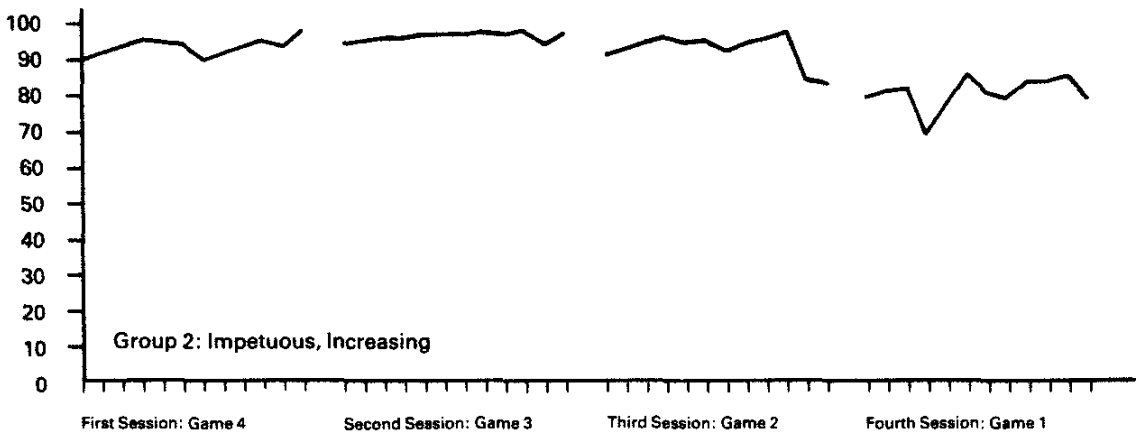
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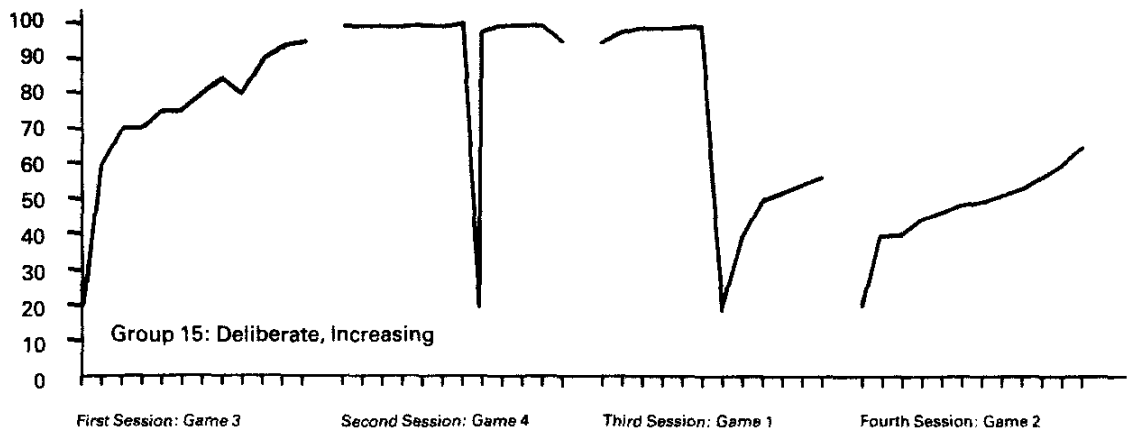
Results in Murnighan (1985) also showed that knowing who had been the strong group member in previous sessions did not significantly affect subsequent outcomes: revenge seemed to play little part in these groups' interactions.

RESULTS

The strong-member payoffs in three typical groups (Groups 2, 10, and 12) are shown in the top three-quarters of Figure 2. Even though a different person assumed the strong position in each session, the strong members' outcomes are very similar within but not between the groups. In Group 2, strong members' outcomes hover around 90 and show only slight irregularity in the last session. In Group 10, the variation in the first session disappears thereafter, and each session ends with an all-equal, \$20,000-each agreement. In Group 12, the variation from trial to trial decreases from the first session to the last,

Figure 2. Strong member's share of each payoff (0-100) for each decision reached in four typical groups.





and the trend of decreasing payoffs is apparent within and across game structures. When all 19 group outcomes are graphed in a similar way, each reveals a unique pattern of payoffs, even when a group clearly oscillates (e.g., Group 12). The character of each of the groups seems unique: even when two graphs depict similar patterns, outcome magnitudes may differ considerably.

When the strong member's outcomes from the Murnighan and Szwajkowski (1979) study were similarly graphed, distinctions between groups and similarities within each group were not so easily discerned. Differences between sessions were as evident as differences between groups. In particular, the continuity seen in the present study was not present. In the earlier study, the strong member's outcomes were clearly affected by each session's changes in the coalition structure and the strong position (see Murnighan, 1985, for a detailed comparison of the outcome data from the two studies).

A supplementary analysis, using the twelve agreements in each session as a replication factor, assessed the effect of group membership and the effect of structure on the strong member's payoffs. Structure was considered as a random sample taken from a normally distributed population of possible coalition structures. (This breach of the assumptions underlying the analysis of variance requires that only large and significant effects be interpreted as supportive.)

A groups (19) x structure (4) x agreements (12) ANOVA on the strong member's payoffs was conducted using a repeated-measures design with groups and structure as random factors and agreements as a fixed factor. As Table 2 indicates, the

Table 2

Analysis of Variance Results Demonstrating the Effects of Membership in Different Groups

Effect	F	Present study (face-to-face bargaining)			F	Murnighan and Szwajkowski, 1979 (partitioned bargaining)		
		df	p<	ω^2		df	p<	ω^2
Group	9.46	18,54	.001	41.3	1.60	23,69	.07	3.9
Structure	2.40	3,54	.08	1.1	5.33	3,69	.002	3.7
Group x trial	1.45	198,594	.001	3.6	1.22	253,759	.02	3.2
Structure x trial	.64	33,594	ns	—	1.87	33,759	.002	1.6

main effect of groups was highly significant and explained a major portion of the variance, while the effect of structure only approached significance. The group x agreement interaction was also significant, but it accounts for much less of the variance. A parallel analysis of the data from Murnighan and Szwajkowski (1979) provides additional support for the existence of unique norms and the importance of face-to-face interactions in the present study's groups: there, the effect of structures was significant, while the effect of groups only approached significance.

Table 3 illustrates the surprisingly large number of non-minimum winning coalitions formed in the present study: 41 percent of all agreements included more than the minimum. Groups were generally consistent from one session to the next and differences between groups are readily apparent. Consistency is even greater when only the all-inclusive, 5-person agreements are considered. In contrast, only 3.6 percent of the agreements in the earlier study (Murnighan and Szwajkowski, 1979) included more than the minimum number of members required to win a payoff. Out of 1,152 agreements, 17 included all 5 members, 14 included 4 members, and 10 included 3 members. Six groups formed 1 or 2 non-minimum winning coalitions (out of 48 agreements); six groups formed 3 or 4, and one group formed 12. The remaining 11 groups formed only minimum winning coalitions.

Table 3

The Number of Non-Minimum Winning Coalitions That Formed in Each Session

Group	Session 1	Session 2	Session 3	Session 4	All sessions	Percentage of 48 agreements
1	0	3	0	0	3	6.3
2	0	1	1	1(1)	3(1)	6.3
3	1(1)	1	2(2)	0	4(3)	8.3
4	3(1)	0	0	2	5(1)	10.4
5	2(2)	3(3)	3(3)	2(1)	10(9)	20.8
6	2(2)	1(1)	2	9(9)	14(12)	29.2
7	9(1)	0	1(1)	5(1)	15(3)	31.3
8	8(3)	6(3)	4	0	17(6)	35.4
9	1(1)	8(8)	0	8(4)	17(13)	35.4
10	5(1)	5(1)	2(2)	7(2)	19(6)	39.6
11	7(3)	2(1)	4(1)	8(2)	21(7)	43.8
12	5(4)	4(2)	9(5)	4(4)	22(15)	45.8
13	7(6)	4(4)	8(6)	5(4)	24(20)	50.0
14	6(2)	9(2)	5(2)	5(4)	25(10)	52.0
15	3(1)	4(2)	6(6)	12(12)	25(21)	52.0
16	10(4)	4(4)	10(4)	3(2)	27(14)	56.3
17	4(4)	10(10)	12(12)	1(1)	27(27)	58.3
18	8(8)	12(12)	12(12)	12(12)	44(44)	91.7
19	12(12)	12	12(12)	12(12)	48(36)	100.0

Note: The number of all-inclusive, 5-person agreements is shown in parentheses.

Effects of Group Norms

The effects of group norms can be seen by observing the variance in the strong member's payoffs and the variance in agreement time from one session to the next. For the 19 groups, nine showed significant decreases in payoff variances and seven showed significant decreases in time variances from the first to the second session; only one group showed a

significant increase in time. Subsequent changes between the second and third and the third and fourth sessions were less frequent and not consistent. Thus, it appears that the patterns established in the first sessions decreased both the time necessary for subsequent agreements and the variance in the strong members' outcomes.

The patterns in the groups' use of time were not limited to their first twelve agreements (see Table 4). The time patterns of the impetuous groups were more homogeneous than those of the deliberate groups. Most spent less than ten minutes in each of their sessions, and departures from this pattern signalled the presence of major threats (discussed below).

Table 4

Deliberate and Impetuous Groups and the Time and Rate of Their Negotiations

Time of 1st session (minutes: seconds)	Style of play	Payoff-rate classification	Time of 2nd session	Time of 3rd session	Time of 4th session	Group number (from Table 3)
7:07	Impetuous	Increasing	15:20	22:42	2:27	7
8:15	Impetuous	Increasing	14:25	9:40	5:10	5
10:42	Impetuous	Decreasing	5:22	8:33	59:30	6
10:50	Impetuous	Decreasing	4:15	4:20	3:00	10
11:47	Impetuous	Increasing	9:20	5:20	6:15	11
13:50	Impetuous	Increasing	22:55	8:05	4:50	4
14:10*	Impetuous	Increasing	5:16	29:25	26:08	2
15:45	Impetuous	Increasing	10:00	15:00	91:45†	8
28:23‡	Impetuous	Increasing	7:34	8:42	8:26	3
20:50	Deliberate	Increasing	41:55	46:50	174:50	9
24:59	Deliberate	Increasing	20:13	53:27	10:11	1
39:30	Deliberate	Increasing	6:14	93:20	52:27	15
44:00	Deliberate	Decreasing	24:30	22:20	69:35§	18
48:40	Deliberate	Decreasing	33:15	14:45	34:50	12
68:42	Deliberate	Decreasing	27:40	13:15	9:45	14
73:14	Deliberate	Decreasing	93:02	62:30	65:30	17
73:55	Deliberate	Decreasing	28:15	50:40	22:00	13
77:30	Deliberate	Increasing	55:50	87:30	8:30	16
118:50	Deliberate	Increasing	49:30	8:10	2:10	19

*5:30 was spent negotiating the seventh agreement of this session.

†85:30 was spent negotiating the second agreement of this session.

‡23:38 was spent negotiating agreements 9 and 10 in this session.

§64:30 was spent negotiating the first agreement of this session.

Table 4 identifies the combination of time and outcome patterns for each group and the time taken in each bargaining session. Increasing groups gave higher and quicker payoffs to the strong member than did the decreasing groups: the correlation between time to reach agreement and the strong member's payoff was $r = -.12$; ($p < .001$). The time required to negotiate each set of 12 agreements was generally consistent within each group.

Testing the Propositions

Proposition 1. Members of impetuous groups appeared to negotiate under the assumption that their scripts were similar. Four impetuous groups made consistently quick agreements, suggesting that their scripts and definitions were compatible, as proposed in proposition 1a (cell I in Figure 1). Five im-

petuous groups, however, exemplified proposition 1b (Cell III), proceeding rapidly until they apparently discovered that their scripts were incompatible. Groups were then forced to negotiate a common understanding. Their infrequent but very slow negotiating times in the second, third, and fourth sessions are clearly observable in Table 4.

The impetuous groups seemed implicitly to share expectations about appropriate group behavior. For instance, Group 10's first-session agreements (see Figure 2 and Table 4) never required longer than 100 seconds. The session ended with an even split of the payoff: each player received 20 percent, with no resistance by the strong player. The first 11 agreements of the second session were even quicker: in 30 seconds or less, the strong player received either 80 or 90 percent of the payoff for all but one agreement. Then, when a weak member suggested they repeat the even split that ended the previous session, the strong member replied, "Even split? Sure." The third and fourth sessions also saw the strong member receive from 80 to 90 percent of the payoff in the first 11 agreements before ending with an even split. No threat ever arose; long discussion was not necessary.

The deliberate groups provide the clearest example of proposition 1c (Cells II and III of Figure 1). They spent considerable time on their early agreements, trying to develop a group-based understanding of what constituted appropriate payoffs. Once that was established, they could make their subsequent agreements more rapidly.

Proposition 2. Proposition 2a states that, with each succeeding agreement, confidence in applying the implicit norm should increase so that agreements should be reached more easily and require less time to negotiate. Time was negatively correlated with the order of each agreement for 12 of 19 groups (7 of 10 deliberate groups and 5 of 9 impetuous groups) during their first 12 agreements and for 15 of 19 groups (8 deliberate and 7 impetuous) for all 48 agreements. An occasional lengthy agreement mitigated the negative relationship for some groups. *Although major threats required extensive discussion time, these analyses suggest that proposition 2a appears reasonable.*

Propositions 2b and 2c discuss how a group member copes with expectations that are not being fulfilled. Proposal revisions in the face of counterproposals occurred frequently. Certainly some of these concessions were strategic: people *do not immediately reveal what they are willing to accept.* Nevertheless, the large variations in outcomes, especially in the first session (e.g., Group 12), suggest that actual changes in members' expectations occurred as they accumulated information about the others' expectations.

Transcripts for four groups (three increasing and one decreasing) whose members could be clearly identified were analyzed to determine the number of times that members revised their offers or held them constant in the face of competing offers by other members. The analysis revealed that both strong and weak members frequently revised their offers in the face of competing proposals by other group members. For increasing groups, strong and weak group members responded to each

other's offers by increasing the strong member's share 53 percent of the time and decreasing it 27 percent of the time. When weak members responded to other weak members' proposals, the strong member was offered more 59 percent of the time and less only 19 percent of the time. In decreasing groups, the comparable increases to the strong member were 46 and 54 percent. Decreases, however, were more frequent, occurring 40 and 33 percent of the time. Thus, although revisions consistently reinforced the strong members' advantages, they were much more advantageous in increasing groups.

At some point during most groups' deliberations, weak members attempted to reduce strong members' strategic power (and average payoff) by trying to establish bargaining cartels. Although these challenges were essentially identical, the groups' responses were diverse, as shown in the responses of the typical groups depicted in Figure 2.

Proposition 3. Especially in their first session, many groups' behavior exemplified proposition 3a, which concerns quickly accepted threats and the general approval implied by this acceptance. In Group 15's first negotiation one member proposed what he called "fair, equal" divisions (all members would receive an equal amount): two people, 50-50; three, 33⅓ each; four, 25 each. The first agreement met this criterion: all five members received \$20,000. By the fourth agreement, however, threats had surfaced and the strong member was receiving 70 percent. Raising the previous equal shares idea was now a threat to a newly emerging norm that legitimized a larger share for the strong member. As an example of proposition 3b, concerning quickly dismissed threats, the equal-shares idea was subsequently ignored, and all the agreements in the next session (except for a single 20-each in each session) gave the strong member by far the largest share.

Another example comes from Group 2. In the first 34 agreements the strong member never received less than 90 percent. A series of cartel threats lowered his payoffs in the fourth session to 80-86 percent, but only one payoff was split five ways. During the final agreement a weak member proposed equal shares. The absurdity of this proposal was apparent to everyone: another weak member quickly replied that, "He would never do that," and the threat was not raised again.

Proposition 3a is also consistent with the periodic equal-share agreements that occurred fairly frequently (and unexpectedly, from a rational and economic point of view). Throughout Group 10's first session the strong member accepted a wide range of allocations. In the twelfth agreement a weak member suggested equal shares and the strong member replied, "Everybody want 20? Agreeable? OK." Subsequent sessions substantiated the legitimacy of this allocation: Each session ended with a quickly accepted request for equal shares.

When threats are not quickly resolved, negotiations are conducted openly. Group 15 experienced this open negotiation early, during their fourth agreement in the first session. One weak member began by saying, "He's getting higher every time! He could get up to 80, 90," This allowed another weak member to repeat his earlier argument for "fair, equal." A third weak member sought to split the payoff evenly. The

strong member rejected all of these alternatives; eventually the weak members affirmed the status quo by bidding the strong member's share up to 75. Having resolved this major threat, Group 15 continued its competitive style into the twelfth negotiation, when the strong member's offer of 96-1-1-1-1 sparked a weak member to challenge: "Wait a minute, why do it that way? Why in heck [don't we] do it back to 60-10-10-10-10?" As Hypothesis 3c suggests, this challenge was short-lived. The strong member in Group 15 also survived another challenge, of 80-5-5-5-5, when a weak member quickly presented a counteroffer of 99.5.

Similar threats were resolved in Group 2's third session. The first six agreements followed the pattern established after the resolution of a threat in the first session. During discussion of the first, fifth, and sixth agreements, however, weak members' calls for equal shares or 60-10-10-10-10 agreements were quickly dismissed. Each time a *different* weak member accepted the strong member's counteroffer. A major threat occurred during the seventh agreement. Negotiations opened with several weak members' laments: "It's always been over 90," "Just stay together for a while," "60 and 10 for the rest." The weak members even rejected the strong's counteroffer but after a short time allowed the strong member's share to rise (70 and 7.5's, 80 and 5's), while maintaining an all-included agreement. Some players, however, continued to push for a 60 and 10's split while the strong member continued to tempt weak members with two-person proposals.

After 5½ minutes of the weak members asserting their conflicting interpretations, the strong member's view prevailed, as one weak member accepted a 90-10 offer and another offered 92-8 for the next agreement. Weak-member bidding was interrupted only twice in the next 26 agreements. During the eleventh agreement a challenge of 60 and 10's was quickly dismissed, and a major (8.75 minutes) threat was unsuccessful during the twenty-fifth (the first agreement of the third session). With no precedent for a weak-member cartel, each subsequent challenge failed. One major threat had already been raised and resolved; consistent with proposition 3c₁, continuing objections, even when they were shared by several group members, were impotent in the face of what was now an established norm.

Proposition 4. Sanctions were often applied, typically by excluding an offending weak member from the agreements. Because strong members could not be excluded from agreements, alternative sanctions were used when they failed to follow a norm. The weak members' most frequently used tactic was delay.

When Group 15's strong members' payoffs are examined (Figure 2), the second session inclusion of one equal-share agreement is surprising. The strong member's payoffs had risen gradually from an initial equal-share agreement to an outcome of 95 by the end of the first session. Along the way a suggestion of equal shares in the fourth agreement was quickly dismissed as was a twelfth agreement call for 60-10-10-10-10. Second-session bargaining continued to award over 95 percent to the strong member until the eighth round, when a weak member suggested, "Why don't we go back to 20

each?" The strong member accepted; on the next trial, however, her share promptly returned to 99.9!

In the third session the strong member tried to refuse a similar call for equal shares. The weak members held firm and fifteen minutes later they received 20 percent outcomes. By refusing and provoking a lengthy discussion, the strong player in the third session violated part of the group's apparent norm of including one equal share agreement in each session. As a result, she paid dearly: a return to payoffs in the 95 percent range was no longer acceptable. Instead, her violation of the equal share part of the group's norm led the weaker group members to force the issue, and after a 46-minute discussion for the next agreement, a new understanding had emerged. All subsequent agreements, even those in the next session, when another group member had taken the position as the strong player, included everyone. Outcomes (see Figure 2) typically exceeded equal shares, but were much less than the previous trend of 90–99 percent for the strong player. In this case, and this is the strongest sanction we observed in this study, delay and intransigent demands for more equally distributed payoffs were imposed by the weaker members. Indeed, a new norm appeared to form as a result of one strong member's norm violation, and the new norm was imposed on the subsequent strong member.

DISCUSSION

As we have noted, this study originated as an experiment on coalition formation and group decision making. Its original intent, fulfilled in Murnighan (1985), was to extend the study of coalition behavior to more organizationally analogous contexts. Our observations of within-group, across-game regularities prompted our analyses and the formulation of our propositions. Thus, this entire presentation can be considered adventitious.

Our data have been analyzed both qualitatively and quantitatively. The qualitative analysis led to our propositions; the quantitative analyses are presented to substantiate our qualitative interpretations. The data simply illustrate what we have inferred to be norms in a particular context. Thus, although we have stated the propositions in general terms, their validity is in no sense established by our analyses. The data is discussed in depth to paint a better picture of these situations.

Thus, this paper differs from typical theory testing and from many examples of theory formulation: we used our observations of these decision-making groups to construct propositions that now require additional testing in other contexts. We have inferred that the behavior patterns we have observed are norms, and that, whether the group members could or did state the shared expectations that developed, these regularities determined much of their subsequent behavior.

The identification of norms, especially implicit norms, is a difficult methodological issue. In this study, an accumulation of regularities (e.g., the value of the outcomes awarded to the strong player; the time taken to reach an agreement; the frequency of all-included agreements within a group) provided the basis for inferring the presence of a norm.

The propositions are a model of norm development; the data do not substantiate the model, but indicate that the propositions have some empirical foundation. Both the existence of particular norms and their individually scripted foundation require considerable future research as the model is tested.

CONCLUSIONS

Although norms play an integral role in several research domains (e.g., organizational entry and socialization), *how* group norms develop and are adopted by the group's members has received only scant attention. This paper presents a set of propositions that model the norm development process and follows nineteen groups as they formulated norms for an unfamiliar task with people they didn't know before. While these propositions must be tested in other groups and other settings, their relevance to several research areas warrants mention.

Ad hoc committees and special work teams force people who have no history of prior interaction to work on often poorly defined tasks. If group members proceed deliberately, testing the appropriateness of their scripts, they will spend considerable time "getting to know" one another and establishing a shared understanding of the group's mission and the actions that are appropriate for its performance. The tentative style of these initial interactions will then give way to actions that are guided by their shared understanding of the situation. If subsequent difficulties arise concerning the appropriateness of a particular action, the group's progress is not seriously threatened, because the mechanism for resolving these differences may already be in place. This process should lead to effective group functioning, as research (Hackman and Morris, 1975) has indicated.

If, however, new group members assume that everyone has similar scripts, they will respond quickly and confidently. If group members do have similar scripts, the group's interactions will proceed without incident. Each interaction will confirm the validity of the meanings that each member attached to the action. If their scripts are not similar, the members may proceed in pluralistic ignorance (Krech and Crutchfield, 1948) until someone questions the appropriateness of the group's actions. This challenge will reveal the discrepancies in the members' understandings of the situation but will not necessarily provide them with any mechanisms for resolving their differences. Recognizing the cause of a problem does not necessarily solve it. Furthermore, resolution may be more difficult in these groups because their members may find it difficult to abandon the perspectives that have guided their behavior since the group's initial interactions. The likelihood of a threat or challenge, then, leads to an expectation of relatively poor performance by groups who do not discuss the basis for their interaction but simply begin working.

Organizational socialization, "the process by which one is taught and learns 'the ropes' of a particular organizational role" (Van Maanen and Schein, 1979: 211) is another research domain that is closely related to norm development. Here, however, the focus is the newcomer's acceptance of an established group's norms rather than the development and

acceptance of new norms in a new group. Although most conceptualizations of organizational socialization consider a newcomer's responses (Feldman, 1976, 1981; Van Maanen and Schein, 1979), few consider how individuals actually adopt the group's norms as their own.

Van Maanen and Schein (1979) base their theory of organizational socialization on the same assumptions of social action that we have used in this paper. Rather than explore how the newcomer acquires a "perspective for interpreting one's experience in a given sphere of the work world" (Van Maanen and Schein, 1979: 212), they focus on several dimensions (e.g., collective vs. individual, formal vs. informal) of "people-processing strategies" that organizations use to socialize their new members. They predict whether newcomers will: (1) assume a custodial or caretaker stance toward the knowledge, strategies, and missions associated with a particular role; (2) attempt to modify or improve the practices associated with a particular role; or (3) reject the role as presented and attempt to redefine it.

Our conceptualization of norm development focuses on the individual's acceptance of the group's norms. When the meanings that newcomers attach to their situation are not confirmed by others, the newcomers need not acquire the organization's perspective automatically. Although they may willingly modify their interpretations of the situation, they may also raise objections and challenge their group's understanding of what constitutes appropriate behavior. As an example, employees with previous work experience who enter a new organization may accept their new employer's standards of behavior even though the procedures differ from their previous work experience. However, they may also present justifications for following their former employer's procedures.

While Van Maanen and Schein (1979) examine the organizational side of the socialization process, research that focuses on the newcomer's responses to novel situations (termed "coping responses" by R. White, 1974) has also deemphasized the ways newcomers acquire and accept the group's norms. Feldman and Brett (1983) identified eight strategies from the stress literature for coping with a new job or job change. Only one, *seeking out information about performance standards and evaluation*, is related to the behaviors discussed here.

Feldman and Brett (1983: 270) concluded their study by asserting that "at this point very little is known about how the socialization practices of an organization evoke individual coping strategies, or how individual coping strategies influence organizational socialization programs." The key to understanding these issues may be to understand the way shared meanings and norms develop between newcomers and the existing organizational unit.

A final substantive conclusion results from the approach this study has taken to the study of coalition formation and *n*-person bargaining. Much of the research in this area has focused on theoretical testing (Murnighan, 1978). Although the plethora of theories provides a strong basis for such research, the external validity and even the enduring theoretical significance of straightforward empirical comparisons are question-

able. By approaching the bargaining context from a broader, less pointed perspective (cf., Murnighan, 1982), research on bargaining has the opportunity to proceed theoretically and expand its currently restricted domain.

Our model of norm development provides the first step toward developing a better understanding of group norms. While the effects of various norms on individual behavior have been studied extensively, the norm-formation process has not (Feldman, 1984). We believe that greater insight into the process of norm development will allow greater control over the impact of social norms in organizational settings. Certainly our knowledge and use of formal socialization practices would benefit from a better understanding of how newcomers adopt and accept the organization's rules and procedures. Organizational power elites are also concerned with the negative impact many informal norms have on individual productivity. Knowledge about how norms develop and are transferred to others would allow this constraint to be understood and "managed." While this raises ethical concerns about exploiting workers and reinforcing the domination inherent in organizational hierarchies, a greater understanding of norm development and adoption would also allow organizational members to become aware of and therefore gain greater control over the social forces that currently dominate them in covert ways.

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